



# Blood Test #4

WAMSS SGR 2022



# Trigger

You are an intern working on the medical ward. Alfred, a 63M presented 3 days ago with severe chest pain and was taken for a coronary angiogram. His past medical history is unknown.

His vitals are stable however his urine output has decreased overnight.

He has been having routine bloods done each morning on the phleb round. Today's results are on the next slide.

**Task:** Interpret the bloods and give your working diagnosis.

## FBC

- Haemoglobin 150 (135-180)
- White cell count 7 (4-11)
- Platelets 360 (150-400)
- MCV 87 (80-100)

## U&Es

- Cr 205 (60-110)
- eGFR 29 (>90)
- Urea 15 (3-8)
- Sodium 139 (135-145)
- Potassium 3.4 (3.5-5.2)

## LFTs

- ALT 32 (<40)
- AST 20 (<45)
- ALP 56 (30-110)
- GGT 40 (<60)
- Bilirubin 8 (<20)
- Albumin 38 (35-50)





<b>Results</b>	FBC – normal U&Es – elevated creatinine and urea (azotaemia) with a reduced eGFR LFTs – normal
<b>Working diagnosis</b>	<p>My working diagnosis is an <b>acute kidney injury</b> because of the oliguria and abnormal renal function. AKIs can be aetiologically subclassified as pre-renal, renal or post-renal. Given the case history, the most likely cause is a renal AKI due to the nephrotoxic contrast given for the coronary angiogram.</p> <p>There may also be pre-renal and/or post-renal factors contributing, but we would need to take a detailed history, do a thorough physical examination and check his fluid balance chart.</p>



# Follow-up Questions

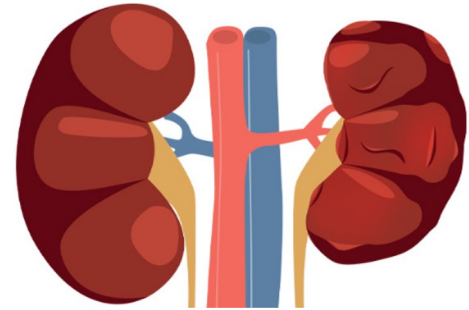
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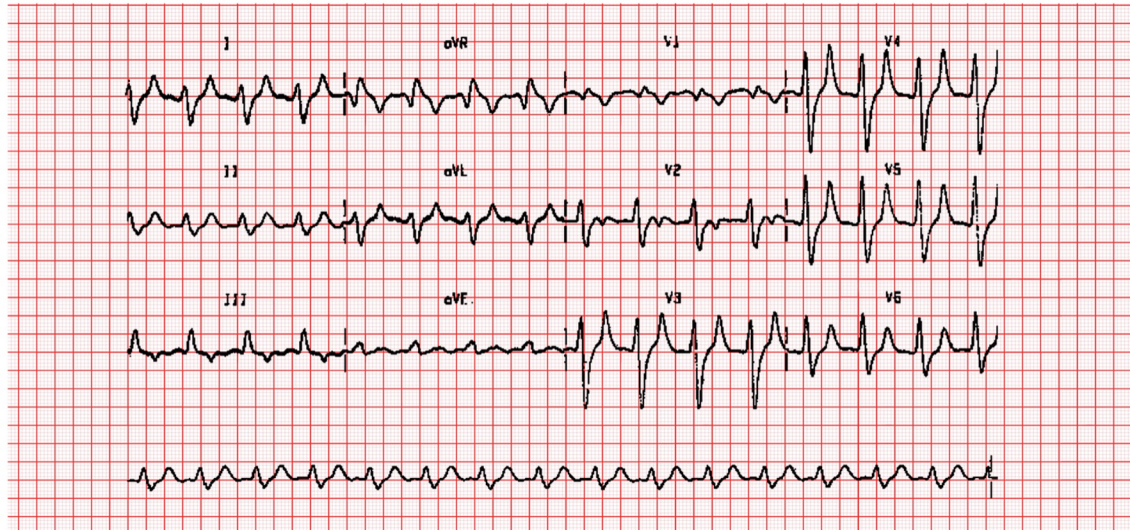
1. What investigation result might we look for in his previous bloodwork?

## Question 1

- A previous renal function result
- We need to know if he has underlying CKD, which would make this acute on chronic renal failure
- There is a growing body of evidence that AKI accelerates the progression of CKD



1. What investigation result might we look for in his previous bloodwork?
2. His renal function continues to deteriorate and he starts to develop electrolyte abnormalities. What diagnosis is shown on this ECG?





## Question 2

- Hyperkalaemia
- The ECG has tall, tented T waves, flattened P waves and broad QRS complexes
- Emergency management includes
  - Calcium gluconate (stabilise the myocardium)
  - Insulin/dextrose infusion, nebulised salbutamol (shift  $K^+$  into cells)
  - Fluids, frusemide, resonium, dialysis (get  $K^+$  out of the body)





1. What investigation result might we look for in his previous bloodwork?
2. His renal function continues to deteriorate and he starts to develop electrolyte abnormalities. What diagnosis is shown on this ECG?
3. Other than kidney disease, what else might cause a raised urea?

## Question 3

- Upper GI bleeds – blood is digested to protein, which is metabolised to urea in the urea cycle
- High protein diet – more metabolism to urea
- Sepsis – increases protein catabolism
- Dehydration – increased reabsorption of urea by the kidneys (complicated renal physiology antics leads to greater water reabsorption)



More information about renal physiology in dehydration here:  
<https://journals.physiology.org/doi/full/10.1152/advan.90185.2008>



# Thank you!

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